



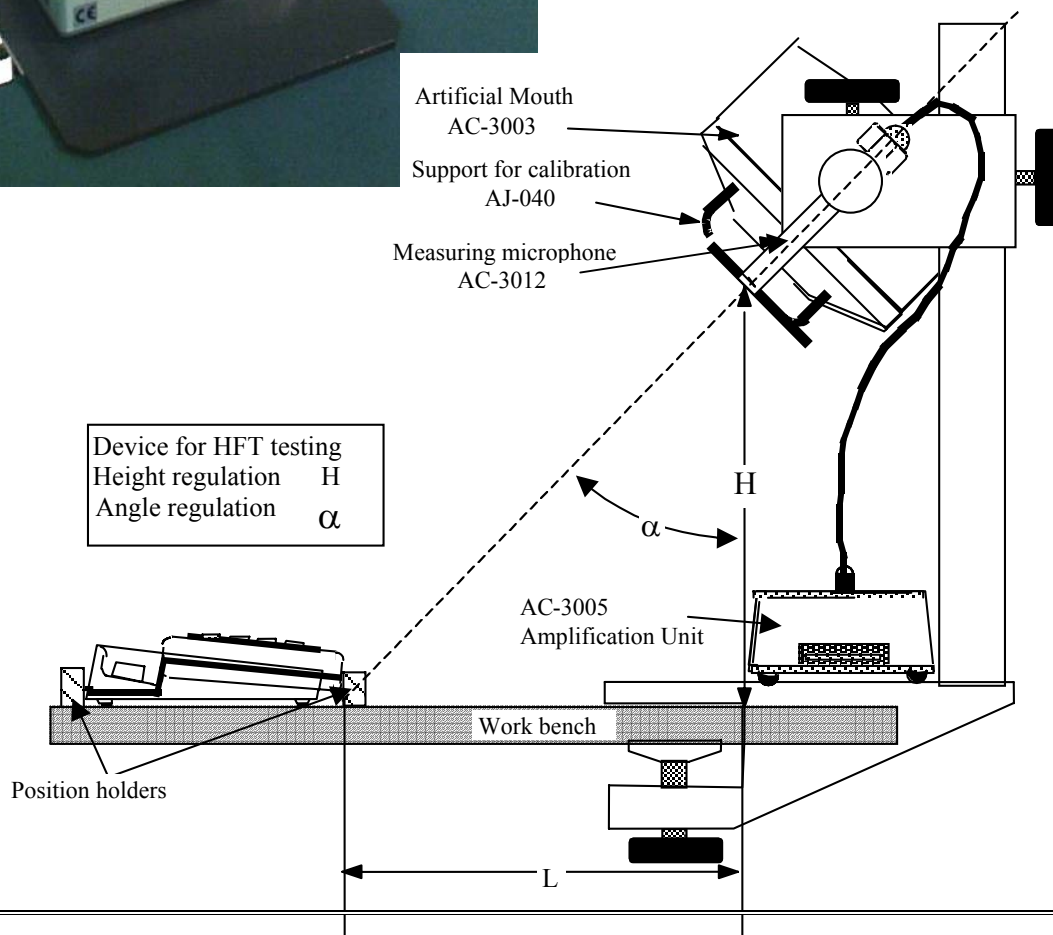
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AC-3VV

Testing device for HFTs Hands-Free Telephones



1 - Generals

Testing device for HFTs AC-3VV allows a test arrangement for the measuring elements as the Artificial Mouth type AC-3003 and the Microphone type AC-3012 with regard to the telephone under test.

Both elements must be connected to an Amplification Unit type AC-3005.

Telephone must be placed on a table as follows:

- the surface should be hard, flat, rigid and horizontal to provide a sound-reflecting surface.
- the dimensions should be such that the surface area is not less $0,96 \text{ m}^2$, normally $1 \text{ m} \times 1 \text{ m}$.
- table surface high from floor $0,75 \text{ m}$, at least.

Positioning of telephone must be repeatable; position holders realizes this purpose.

Walls must be to 1 m , at least, and the room acoustics must not have a dominating influence.

The tests should be made in an environment where the ambient noise level is negligible. For this purpose see the Technical Manual CS8014 Chapt.2 -§2.5 - Transmission measurements.

ITU rules, Volume V - Rec. P. 34, requires:

| | |
|----------|---|
| L | <i>400 mm between the outline of projection of housing and the edge of the table.</i> |
| H | <i>300 mm between the lip-ring of the artificial mouth, measuring microphone and the table surface.</i> |

Because the tests are made in an industrial environment, we suggest, sometimes, to reduce L/H distances to minimize the errors due to the standing waves or the environmental noise.

Changing distances needs to adjust the α angle.

In these conditions the measurements have to be considered as relatives to a sample of telephone sets measured correctly in a free-field (anechoic) condition.

Best results are obtained as follows. (Typical conditions – in any case you must refer to the adopted Standard):

| | |
|----------------------------------|--|
| <u>receiving measurements</u> | |
| * | You must program CS8014 for: <i>speech - rx - ITU – ITU - sealed</i> - don't use display attribute - set excitation level for -22.2 dB_V ($\text{emf} = 155 \text{ mV}$) - set a measure offset at $+14 \text{ dB}$ according to ITU-P34 On the eventuality, remove the Artificial Mouth to avoid its reflection effect on the measure microphone. |
| <u>transmitting measurements</u> | |
| * | You must program CS8014 for: <i>speech – tx – ITU – ITU - speech</i> - don't use display attribute - set excitation level for -4.7 dB_{Pa} (89.3 dB_{SPL}) Calibrate the Artificial Mouth AC-3003 already assembled on AC-3VV |
| <u>for all measurements</u> | |
| * | Don't insert <i>delay</i> ; measure is made in 300 mSec . Normally, in the above time, the telephone don't actives the automatic level regulation circuits. Sometime, to avoid the operation of the automatic level regulation circuit of the telephone under test, it's advisable, to program for the acoustic tests, the <i>BURST - on</i> mode, to pulse the test signal with 4 Hz rate. Program a <i>delay</i> less than 1 Sec . |

2 - AC3005 Amplifier Unit

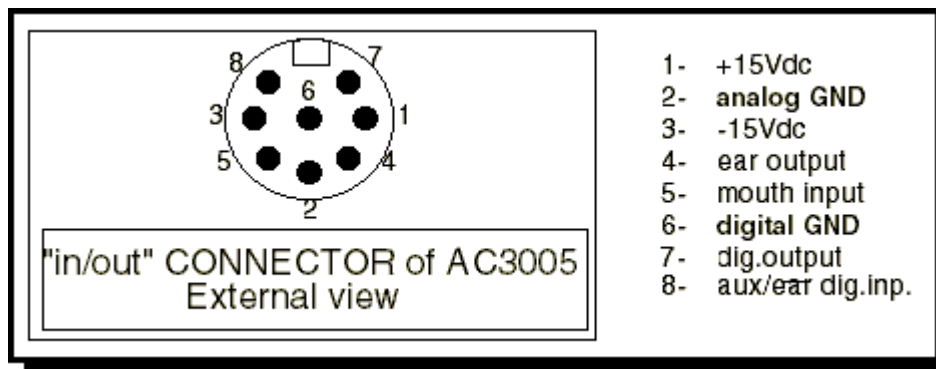


fig.2

AC3005 contains the equalization chain for the Artificial Ear or Measure Microphone, the power amplifier for the Artificial Mouth and besides an EEPROM memory.

Memory is one of the main element of the Artificial Head, because inside it are registered the individual calibration parameters.

These parameters are:

- response curve of the microphone and its sensitivity
- signals to drive the Artificial Mouth to generate the spectrums LINEAR, SPEECH and SFERT and both type of noises, LINEAR and SPEECH.

Calibrations are made in the factory or by the user and data are stored in memory¹.

Inserted data are used during the speech tests to make level measurements as using an ideal transducer and for generating a correct acoustic pressure in all frequency spectrum for the 1/3 octave tests.

CS3005 has an input connector aux to connect auxiliary devices as **HA** Magnetic detector for Hearing Aids and **PH-18** Sound Level Meter.

A logic command selects which of two inputs must be measured; by logical level 0 input from ear/microphone, by logical level 1 input from "auxiliary".

¹ Data store is made during a complete calibration procedure

3 Characteristics

Main characteristics

| | |
|---------------|--|
| Size | H = 520 mm W = 200 mm D = 200 mm |
| Weight | 10.5 Kg. |
| Supply | ±15Vcc ±115mA @ max output level |

Measure Microphone (connected to CS3005)

| | |
|---|--|
| Input frequency range 200 ÷ 4000Hz frequency response intrinsic frequency response calibrated influence at relative humidity max sound pressure | +1/-2,5dB max ± 0,6dB typical ± 0,2dB ³ ± 0,2dB @1KHz 45 ÷ 75% RH 115 dBspl |
| Output level impedance | 266mV/Pa ² 600Ω ±1% |

Artificial Mouth (connected to CS3005)

| | |
|--|--|
| Input impedance | 600Ω ±1% |
| Output frequency range 200 ÷ 4000Hz frequency response intrinsic frequency response calibrated max sound pressure distorsion@100dBspl mouth opening labial plane | ± 5dB typical ± 0,5dB ³ 105.5 dBspl <3% THD 20 mm 10 mm from mouth opening |

² Pa (Pascal) measure unit of the acoustic pressure; equal to 94 dBspl

³ Value after calibration procedure made with CS8014, as indicated at chapt.16 of Technical Documentation and using data stored in the memory of CS3005